

INTERANNUAL VARIABILITY IN EARTH ROTATION AND ATMOSPHERIC ANGULAR MOMENTUM: EL NIÑO CONNECTIONS

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Comparisons between length of day (LOD) and the strength of the ENSO cycle, represented by the Southern Oscillation Index (SOI, the difference in sea level pressure between Darwin and Tahiti) series, have indicated striking agreement, with high interannual values of LOD generally coinciding with ENSO events. During an ENSO event, the SOI reaches a minimum, leading to an increase in atmospheric angular momentum (AAM) associated with the collapse of the tropical easterlies. Further increases in AAM may result from a strengthening of westerly flow in the subtropical jet streams. Conservation of total angular momentum then requires the Earth's rate of rotation to slow down, thus increasing LOD.

The impact of the 1997-98 ENSO event will be presented in context of angular momentum exchange utilizing LOD, SOI and AAM (both global and latitudinally belted) data. We have utilized the NCEP reanalysis from 1959 to 1998 from the surface to 100mb to examine the effect of the tropospheric zonal winds. Special emphasis will be placed on the globally coherent polarward propagation observed on interannual time scales; decadal variability will also be addressed. The techniques utilized include traditional recursive filter and multi-channel singular spectrum analysis (M-SSA); comparisons will be made with previous events, especially the 1982-83 event.

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4. Poster Presentation
5. None
6. No
7. No